BRIEF REPORTS

Nutrition Management of Type 2 Diabetes by Primary Care Physicians

Reported Use and Barriers

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A survey was mailed to a probability sample of primary care physicians in Indiana to assess their use of and barriers to nutritional therapy for patients with type 2 diabetes. Most (62%) primary care physicians reported referring their type 2 diabetes patients for nutrition counseling, while 38% reported providing counseling themselves. Patient-centered barriers were most frequently cited as reasons for poor effectiveness of nutrition therapy. This differs from previous research that cites system-level factors as barriers.

KEY WORDS: **diabetes; nutrition management; barriers.**
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Nutrition management is considered a cornerstone of therapy for patients with type 2 diabetes mellitus. The American Diabetes Association suggests that a nutritionist be included as a member of the care team to provide ongoing nutrition counseling at least every 6 to 12 months.[1] However, while team management has become standard in large centers, few persons with diabetes receive their care in this setting. In patients with diabetes, most (72%) ambulatory visits are to a primary care provider, while only 8% are to an endocrinologist.[2]

Few systematic investigations of the nutrition care provided in the primary care setting have been conducted, particularly for individuals with diabetes. We undertook this investigation to better understand primary care physicians' practices and beliefs regarding nutrition therapy for patients with type 2 diabetes. Specifically, we sought to better understand the providers' reported use of nutrition counseling, the extent of their involvement in counseling and referral efforts, and their views about the external barriers to obtaining nutrition consultations for patients with type 2 diabetes. We therefore conducted a mailed survey of a randomly selected sample of primary care physicians in Indiana.

METHODS

Sample Selection

Physicians specializing in family practice, general internal medicine, and general practice in Indiana were chosen for the survey. A stratified sampling method with proportional allocation was used to select a probability sample for receipt of the questionnaire. Because previous research has shown differences in practice behavior among medical specialties[3-6] we stratified by specialty using the specialty codes assigned to physicians in the sampling frame. Assuming a response rate of 60%, with 10% of the respondents ineligible for analysis, a sample size of 993 was required to estimate the desired parameters within 2%. One thousand physicians were eventually selected after stratification. Analyses were performed so that response rates were adjusted to and reflected the distribution of the sampling frame.

Survey Instrument

The mailed survey instrument asked about demographic and background information, counseling and referral practices, and perceived barriers to the use of nutrition management. Most questions were close-ended/forced choice, with the exception of questions regarding proportions of patients and 1 question regarding perceived barriers, which were open-ended.

Analytic Methods

Estimates from each respondent were weighted to reflect probability of their selection from 1 of the sampling strata. The analyses were performed using SUDAN (SUDAN Software, Research Triangle Institute, Research Triangle Park, NC), a statistical program that adjusts for the differential response in the five strata of the sampling frame. Dichotomous results were compared using χ^2 tests and

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Likert scale distributions compared using analysis of variance to detect differences at the $P < .05$ level. Table 1 presents demographic data for all responders. All other results were adjusted for the sampling frame.

RESULTS

Participants

One thousand family practice, general practice, and general internal medicine physicians within the state of Indiana were surveyed. From this population, 579 (58%) returned questionnaires. Of these, 427 met eligibility criteria, i.e., a primary specialty of family practice, general practice, or general internal medicine; currently in active practice; and currently treating patients with type 2 diabetes. Demographic information for the responding physicians who met eligibility criteria is presented in Table 1. Sixty-three percent of the responding physicians reported a primary specialty of family practice; approximately one third of the respondents reported being in solo practice. The median year of graduation was 1977 (mean, 1975). Collectively, the sample reported caring for a substantial number of type 2 patients, with 66% treating at least 50 patients with type 2 diabetes each year.

Use of Nutrition Education and Counseling

Most physicians (62%) reported that they refer at least some of their patients with diabetes for nutrition counseling. Physicians reported providing nutrition services themselves for 38% of their patients with type 2 diabetes. When physicians did not counsel patients themselves, the reason most often cited was the availability of a good nutrition counselor or education program. For respondents who indicated that they refer their patients for counseling and education services, the majority (76%) referred to a registered dietitian.

Respondents were asked to indicate what types of nutrition education and counseling professionals and/or programs are available for referral. The majority of respondents reported that registered dietitians (86%) and hospital-based programs (67%) are readily available. Fewer respondents reported availability of American Diabetes Association–recognized education programs (35%), a certified diabetes educator (32%), or office nurse who provides nutrition education (26%).

Table 1. Demographic and Background Information

	n (% of Eligible Respondents)
Specialty	
Family practice	267 (63)
General practice	40 (9)
General internal medicine	120 (28)
Type of practice*	
Individual (solo)	146 (34)
Small group (<5 physicians)	93 (22)
Large group (≥5 physicians)	105 (25)
Hospital-owned ambulatory clinic	36 (8)
Community-owned ambulatory clinic	4 (1)
Academic or government hospital	16 (4)
Other	12 (3)
Practice location	
Metropolitan (urban)	291 (68)
Nonmetropolitan (rural)	136 (32)
Number of patients with type 2 diabetes†	
1 to 25	46 (11)
26 to 50	86 (20)
51 to 100	132 (31)
>100	151 (35)

**Missing responses* n = *15 (3%).*
†Missing responses n = *12 (3%).*

Perceived Barriers to Using Nutrition Therapy for Patients with Type 2 Diabetes

Respondents were asked to describe the magnitude of barriers to nutrition management considering 3 general types of problems: patient-focused, structural or systems-based, and nutritional or nutrition counselor–focused. Table 2 summarizes the responses to the closed-ended questions. Most physicians rated patient-based problems as significant barriers: 78% felt patients are not interested in regulating their diabetes with nutrition, 97% viewed patients as nonadherent with nutritional prescriptions, 81% reported that they believe that family members are not supportive of nutrition-based therapy, and 68% felt that patient education level is a moderate to overwhelming barrier. A sizable percentage (42%) suggested that inadequate insurance reimbursement for physician-implemented nutrition counseling is a moderate to overwhelming barrier. Similarly, 52% cited inadequate insurance reimbursement as a barrier to using nutrition counselors. Notably, very few respondents suggested that access to suitable nutrition counseling was an important barrier. This observation is consistent regardless of whether the practice location was urban or rural.

In addition to the scaled responses, respondents were asked in an open-ended question what they felt was the "biggest problem you face when considering nutrition therapy for your type 2 patients?" The majority (81%) of respondents indicated some form of patient compliance problem such as attitude, noncompliance, or lack of understanding. The difficulty of changing patient behavior was mentioned by 8%. The next most frequently cited reasons were lack of appropriate nutritional training in medical school and lack of time for implementing nutrition education and counseling (each cited by 3%).

DISCUSSION

The data from this survey suggest that most primary care physicians attempt to use nutrition therapy in the treatment of patients with type 2 diabetes. Physicians

Table 2. Perceived Barriers to the Use of Nutrition Management*

	Not a Problem	Small Problem	Moderate Problem	Significant Problem	Overwhelming
Structural or systems-related issues					
Inadequate insurance reimbursement for nutrition education and counseling provided by physician (n = 385)	32	26	18	21	3
Inadequate insurance reimbursement for nutrition education and counseling provided by nutrition counselor (n = 376)	25	23	25	25	2
Patient cannot afford nutrition education/counseling (n = 387)	20	25	25	24	6
Nutrition counselor too far from patient (n = 386)	60	27	9	3	1
Nutrition counselor's hours inconvenient (n = 385)	47	35	16	2	0
Lack of access to nutrition education materials (e.g., books, brochures) (n = 386)	62	27	10	1	0
Inadequate training in nutrition therapy during medical school (n = 383)	29	34	21	15	2
Patient-focused issues					
Patient not interested in nutrition therapy (n = 408)	3	19	40	32	6
Patient does not follow prescribed diet (n = 409)	0.3	3	22	58	17
Patient's educational status (n = 408)	4	28	46	19	3
Patient's diet not supported by family (n = 407)	4	16	41	33	7
Diet/nutrition counselor–related issues					
Diabetic diets are too expensive (n = 409)	45	32	21	2	0.3
Nutrition counselor does not know enough about nutrition management of patients with type 2 diabetes (n = 402)	74	21	4	2	0.3
Nutrition counselor unrealistic with patient (n = 400)	51	32	12	4	1
Nutrition counselor does not communicate results of visits with me (n = 400)	49	25	16	9	1

**Percentage of respondents by questionnaire item.*

reported that for approximately one third of their patients, they conduct a significant amount of nutrition counseling themselves. They also refer an average of 62% of their patients to a nutrition counselor. For nutrition education and therapy, respondents reported that they most frequently refer patients with type 2 diabetes to a registered dietitian.

The analysis of reported barriers to the effectiveness of nutrition therapy is noteworthy. Access to professionals and/or programs was not viewed as problematic nor were the qualifications or expertise of referral sources perceived to be deficient. Likewise, most physicians (63%) did not believe that their medical school training in nutrition therapy poses a significant problem in the implementation of nutrition therapy programs for their patients. The most frequently cited problems inhibiting their ability to effectively implement nutrition therapy were insurance reimbursement and patient-centered factors (particularly patient nonadherence). This survey was conducted before the state of Indiana mandated coverage for nutrition therapy for all persons with diabetes, so the impact of reimbursement barriers should now be much less.

The study has several limitations. No chart audit or other method was used to verify self-reported practice behaviors, which tend to be overestimated. Therefore, the data presented may not reflect actual practice behaviors. However, surveying is a reliable method to assess attitudes and beliefs. Also, we did not collect information on actual knowledge of nutrition, so the accuracy of the providers' knowledge and skills in this area cannot be assessed.

Our findings suggest widespread acceptance of nutrition therapy for patients with type 2 diabetes by primary care providers, tempered by a realistic view of patient-based barriers to effective nutrition therapy. The willingness of primary care providers to personally provide some nutrition education and to refer patients to nutrition therapists underscores a complementary and supportive relationship between members of the diabetes care team. Our data suggest that many primary care physicians provide basic fundamentals of nutrition therapy, but do not view their efforts as a substitute for more formal, in-depth nutrition counseling. Future research should identify the best mechanisms for primary care providers to support ongoing nutrition management for persons with diabetes.

Further study of patient-centered factors, especially nonadherence, is needed. A follow-up study of patients that compares their perceptions and experiences with nutrition management would be a valuable adjunct to the present survey. By combining the results of such a study

with those of the physician survey, effective patient-directed programs could be developed. Patient-focused programs not only need to address knowledge, skills, and behavioral change issues specific to the initiation of nutrition therapy, but should also incorporate training in nutrition maintenance techniques as well.

Finally, in spite of our respondents' perception that they have adequate training in nutrition therapy, most medical training programs offer little or no training in behavioral change strategies. Such strategies are essential in achieving the long-term lifestyle modifications inherent in nutrition-based therapy. The view of the responding physicians that patients simply do not want to comply with nutrition counseling may in fact reflect the inability of physicians to effectively implement needed behavioral change strategies. If physicians are to effectively counsel patients, programs that incorporate training in techniques for facilitating change in patient behavior need to be developed for physicians.

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